



NEW MEXICO ENVIRONMENT DEPARTMENT
GROUND WATER QUALITY BUREAU
FACT SHEET – DP-1132



DRAFT Groundwater Discharge Permit DP-1132

Facility Name: Radioactive Liquid Waste Treatment Facility

Facility Location: Within Los Alamos National Laboratory, approximately 1.5 miles south of Los Alamos, New Mexico
Sections 16, 17, 20, 21 and 22, Township 19N, Range 06E

County: Los Alamos County

Applicant: United States Department of Energy (DOE)
National Nuclear Security Administration (NNSA)
Los Alamos Field Office
Jody Pugh, Assistant Manager
Mission Assurance & Infrastructure
3747 W. Jemez Road, MS A316
Los Alamos, NM 87544

Triad National Security, LLC
Enrique Torres, Division Leader
Environmental Protection & Compliance Division
PO Box 1663, MS K491
Los Alamos, NM 87545

Proposed Permitting Action: Issuance of a Discharge Permit

Regulatory Authority: Water Quality Control Commission's Ground and Surface Water Protection Regulations, 20.6.2 NMAC

Issuing Agency: Ground Water Quality Bureau of the New Mexico Environment Department

GWQB Contact: Andrew Romero
PO Box 5469, Santa Fe, NM 87502-5469
Phone: (505) 827-0076
Email: andrewc.romero@state.nm.us

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The New Mexico Environment Department has prepared this Fact Sheet in association with the referenced groundwater discharge permitting action to provide information regarding the applicant, a brief description of the proposed discharge, information about how a person may become involved in this permitting action, and a brief summary of the basis of the draft permit conditions. This Fact Sheet is provided to the applicant along with the draft discharge permit when, through a public notice, all parties are provided an opportunity to comment on the permit and to request a public hearing.

Description of the Proposed Discharge

The Radioactive Liquid Waste Treatment Facility (RLWTF or Facility) is a wastewater treatment facility that receives and treats radioactive liquid waste (RLW) from waste generating locations at Los Alamos National Laboratory (LANL). The Discharge Permit authorizes the use of the RLWTF's multiple systems and associated units, including: the influent collection system; the influent storage system, i.e., the Waste Management Risk Mitigation Facility (WMRM); the low-level radioactive liquid waste treatment system; the transuranic wastewater treatment system; and the secondary treatment system. RLW treatment processes include chemical treatment in a reaction tank, filtration, ion exchange, and reverse osmosis. The Discharge Permit authorizes the discharge of treated water via the Mechanical Evaporator System (MES) and the Solar Evaporative Tank (SET) at TA-52. The discharge of treated water at an outfall (Outfall 051) is authorized by a National Pollutant Discharge Elimination System (NPDES) permit issued by the United States Environmental Protection Agency (EPA) pursuant to the federal Clean Water Act Section 402, 33 U.S.C § 1342. Up to 40,000 gallons per day (gpd) may be discharged via the three processes identified above. The discharge may contain water contaminants with concentrations above the standards of 20.6.2.3103 NMAC and may contain toxic pollutants as defined in 20.6.2.7.T NMAC. The radioactive constituents in these standards include combined Radium-226 and Radium-228, in addition to total dissolved uranium and cobalt. The Facility, through its association with the Department of Energy and its U.S. defense related activities, is self-regulating for the management of all other radionuclides. The discharge is located within LANL, which is located approximately 1.5 miles south of Los Alamos, New Mexico, in Sections 16, 17, 20, 21 and 22, Township 19N, Range 06E, Los Alamos County. Groundwater most likely to be affected ranges from depths of approximately one foot to 1,306 feet and has a total dissolved solids concentration ranging from approximately 162 to 255 milligrams per liter.

Rationale for Second Hearing

A public hearing was held on the issuance of DP-1132 on April 19, 2018. On June 18, 2019, the Water Quality Control Commission (WQCC) ruled that the Hearing Officer's job application and subsequent hiring by one of the parties created an improper appearance of bias potentially affecting the Secretary's deliberation and issuance of DP-1132. The WQCC then ruled that, pursuant to NMSA 1978, Section 74-6-5(Q), 20.1.3.16(A)(3) NMAC, and 20.1.3.16(f)(3) NMAC, the Secretary's Order from the first hearing is vacated and the matter be remanded to the New Mexico Environment Department for a new hearing with a newly appointed Hearing Officer.

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Comment Period / Hearing

NMED will notify the public of the availability of the draft Discharge Permit and this Fact Sheet in a state-wide and a local newspaper of general circulation and will allow 30 days after this notification for any interested party to submit comments. To obtain a copy of this draft Discharge Permit, visit the Ground Water Quality Bureau's (GWQB) website at <https://www.env.nm.gov/gwqb/> or contact the GWQB Contact listed at the beginning of this Fact Sheet. To submit a comment, contact the GWQB Contact listed at the beginning of this Fact Sheet.

NMED will notify the public of a second hearing regarding the draft Discharge Permit in the same newspapers utilized for the notice of the availability of the draft Discharge Permit. A hearing has been scheduled to begin November 14, 2019, at the Fuller Lodge in Los Alamos.

Regulatory Framework

The Ground and Surface Water Protection Regulations, 20.6.2 NMAC, establish the regulatory framework for controlling discharges onto or below the surface of the ground through the issuance of groundwater discharge permits. The purpose of the regulations pertaining to groundwater discharge permits, as stated in 20.6.2.3101 NMAC, is "to protect all groundwater of the state of New Mexico which has an existing concentration of 10,000 mg/l or less of total dissolved solids, for present and potential future use as domestic and agricultural water supply, and to protect those segments of surface waters which are gaining because of groundwater inflow, for uses designated" in the Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC).

Persons proposing to discharge effluent or leachate in such a manner that it could move directly or indirectly into groundwater must obtain and comply with a discharge permit (20.6.2.3104 NMAC). To obtain a discharge permit, an applicant must submit an application (or "discharge plan" – 20.6.2.7 NMAC) proposing methods/techniques to be used or processes expected to naturally occur to ensure that the discharge of water contaminants does not result in the contamination of ground or surface water (20.6.2.3106 NMAC).

In reviewing and approving an application, NMED must ensure that the discharge plan will not result in a hazard to public health, undue risk to property, exceedance of the groundwater standards at any place of withdrawal of water for present or reasonably foreseeable future use, or violation of a stream standard (Subsections 20.6.3109.C and H NMAC). "Hazard to public health" is defined in 20.6.2.7 NMAC and pertains to the exceedance of the groundwater standards in a drinking water supply. 20.6.2.3103 NMAC establishes the groundwater standards.

20.6.2.3109.B NMAC directs the NMED Secretary to "approve, approve with conditions, or deny" a discharge permit application, after the administrative record is complete and all required information is available. This regulation authorizing permit approval "with conditions" provides the fundamental authority for including conditions in discharge permits.

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Basis for Draft Permit Conditions

The conditions in this draft Discharge Permit are organized into the following Sections: Operational Plan, Monitoring and Reporting, Contingency, Closure, and General Requirements. The draft Permit conditions conform to the requirements of the regulations and are generally consistent with similar conditions in other groundwater discharge permits issued by the department.

A. Operational Plan Conditions Section

Conditions in this Section require the permittee to properly operate and maintain the treatment and disposal system; to conduct testing and inspections to make sure all components of the treatment and disposal system are functioning as intended; to restrict access to the system so that unauthorized persons can neither damage the system nor be exposed to unsafe conditions; and to post appropriate advisory signs at the facility or discharge locations.

This Section also requires the Applicants to provide plans and specifications for any Facility expansion, alteration, or process modification, and to obtain Department approval prior to commencing these changes. The requirements in this Section conform in-part to the requirement of 20.6.2.1202 NMAC that a permittee proposing the construction or modification of a facility that will change the character of the discharge shall file associated plans and specifications with the Department.

This Section requires the Applicants to submit verification that all Facility units and systems intended to convey, store, treat or dispose of an untreated liquid or semi-liquid waste stream have sufficient secondary containment. This requirement conforms to 20.6.2.3106.D NMAC which requires that a discharge plan shall set forth in detail the flow characteristics of the discharge, set forth the design of the site, and set forth any additional information necessary to ensure that compliance with the discharge permit will not result in concentrations in excess of the standards at any place of water withdrawal.

This Section includes effluent quality limits for discharges of treated RLW to Outfall 051 to prevent exceedances of groundwater standards. Associated with this requirement is a table of chemical constituents and effluent quality limits derived from 20.6.2.3103 NMAC, Standards for Ground Water. This Section addresses limits for the toxic pollutants in 20.6.2.7.T NMAC (i.e., the concentrations listed in Table A-1 of the Department's Risk Assessment Guidance for Site Investigation and Remediation). For any water contaminant that is not listed in Table 1 of this Discharge Permit, or in Table A-1 of the Risk Assessment Guidance, the limit shall be the most recent EPA Regional Screening Level (RSL) for residential tap water. This Section further specifies that water contaminants subject to effective and enforceable limitations in NPDES Permit No. NM0028355 for discharges to Outfall 051 are exempt from the condition's limits.

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This Section includes effluent quality limits for discharges of treated RLW to the MES and SET in order prevent contamination of groundwater if an unauthorized discharge from either of these units were to occur. These limitations conform to the requirement of 20.6.2.3109.C NMAC that a discharge plan will not result in either concentrations in excess of the standards of 20.6.2.3103 NMAC or the presence of any toxic pollutant at any place of withdrawal of water for present or reasonably foreseeable future use. This Section includes a table of chemical constituents and effluent quality limits derived either from 20.6.2.3103 NMAC, Standards for Ground Water, or from the drinking waste standards set forth in the Safe Drinking Water Act.

This Section requires the installation and calibration of flow meters on influent and effluent lines at the Facility, including effluent meters associated with the MES, the SET, and Outfall 051. These requirements conform to 20.6.2.3107.A NMAC specifying that a discharge plan include provisions regarding the installation, use, and maintenance of effluent monitoring devices, and conforms to the requirement of 20.6.2.3109.C(3)(c)(i) NMAC that a discharge plan include adequate provision for flow monitoring so that the amount being discharged can be determined. Upon installation of the flow meters, the Applicants would be obligated to establish a meter calibration method for each meter, specify a periodicity for meter calibration, and specify an accuracy limit for the various meter types. This Section requires a calibration report for each flow meter be prepared at a minimum annually.

B. Monitoring and Reporting Conditions Section

Conditions in this Section require the permittee to monitor and report on various aspects of the discharge system to verify that operations are within the Discharge Permit limits and that the Permit is achieving the expected results. Monitoring and reporting requirements are authorized by 20.6.2.3107.A NMAC. Pursuant to 20.6.2.3109.H NMAC, a discharge permit may not be approved without provision for flow measurement and sampling.

This Section requires the submittal of quarterly monitoring reports that contain the following items: influent volumes of RLW and Transuranic waste water received at the RLWTF, discharge volumes, analytical results of sampling of groundwater monitoring wells, effluent waste streams discharged to Outfall 051, the SET, and the MES, groundwater flow direction, and groundwater elevation contour maps.

This Section also requires the installation of a moisture monitoring system for detection of unauthorized releases from the SET and for the establishment of soil moisture baseline conditions prior to initiating discharge to the SET. The soil moisture monitoring system, together with the unit's leak detection system, are means to evaluate the effectiveness of the zero-liquid-discharge design of the SET.

This Section requires the installation of two replacement monitoring wells in the alluvial aquifer at a location hydrologically downgradient of Outfall 051 to replace two improperly constructed wells.

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C. Contingency Plan Conditions Section

Contingency conditions in this Section establish required corrective actions or require the permittee to propose corrective actions for NMED approval in the case of failure of the discharge system. Contingency plans are authorized by 20.6.2.3107.A(10) NMAC. As applicable to the specific discharge system, standard contingency conditions address the exceedance of groundwater standards, exceedance of contaminant discharge limits, damage to impoundment liners, lack of required freeboard in impoundments, and monitoring well deficiencies (e.g., improper construction, improper location for monitoring the intended source, insufficient water for sampling). Contingency requirements are included in conditions throughout the Discharge Permit, not just this Section. The permittee is required to report and address unauthorized discharges in accordance with 20.6.2.1203 NMAC.

D. Closure Conditions Section

Conditions in this Section prescribe measures and timeframes for closing part or all of the facility so that discharges can no longer occur and so that the exceedance of groundwater standards does not occur after the cessation of the operation. If contamination does occur during this period of activity, closure conditions require remediation. Closure requirements are authorized by 20.6.2.3107.A(11) NMAC, which also stipulates that closure requirements survive the termination or expiration of the Discharge Permit.

This Section requires the cessation of operation of six specific units at the Facility because the units are single-walled units and have no effective secondary containment, thus posing a risk of groundwater contamination if the integrity of the units were compromised. Upon cessation of operation of a unit, the applicants are obligated to submit a stabilization work plan for the unit or system that has permanently ceased to operate. The purpose of these conditions is to ensure that, upon cessation of use, all units or systems at the Facility can no longer receive an influent or discharge of contaminated wastewater and the unit or system no longer has the potential of causing a release of wastewater.

An overall closure plan for the facility and its components is attached to and would be approved as part of the Discharge Permit.

Groundwater monitoring is required after the discharge ceases until eight quarters of sampling confirm no exceedance of standards. This two-year period allows for the potential movement of contaminants through the vadose zone and is consistent with the time period established in remediation programs demonstrating that remediation is complete, e.g., 20.6.2.4103 NMAC (abatement plans) and 20.5.119.1929 NMAC (petroleum storage tank systems).

This Section requires that any corrective action (e.g., investigation, cleanup) for potential and actual releases of contaminants into soils and groundwater at solid waste management units (SWMUs) and areas of concern (AOCs) at the Facility be performed under the Consent Order and not under this Discharge Permit. This is required so that agency required corrective action under

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the Discharge Permit is consistent with the Compliance Order on Consent (June 2016, Consent Order) entered into between the New Mexico Environment Department and the DOE pursuant to the New Mexico Hazardous Waste Act, NMSA 1978, §74-4-10 and the New Mexico Solid Waste Act, NMSA 1978, §74-9-36(D).

E. General Terms and Conditions Section

These general terms and conditions are standard in all discharge permits. The permittee is required to maintain certain records and provide them if requested to NMED, as authorized by Subsections 20.6.2.3107. A and D NMAC; and to notify NMED of proposed changes to the volume, location, or character of the discharge, as this may require a “discharge permit modification” as defined in 20.6.2.7.D NMAC and is consistent with the notification requirement in 20.6.2.3107. C NMAC.

This Section also notifies the permittee of requirements contained in the Ground and Surface Water Regulations (regarding transfer of the permit, permit fees, and submitting construction plans and specifications) and contained in the Water Quality Act (allowing inspections, civil and criminal penalties, duty to comply with other laws).

This Section requires that specific documents required under this draft Discharge Permit are to be posted to the Electronic Reading room within a thirty-day period. Documents are listed as either Mandatory or Voluntary.